TRACK ASSEMBLY

Field of the Invention

[001] The present invention relates generally to wheeled vehicles. More particularly, the present invention relates to a track assembly that may be used to convert construction equipment such as wheeled skid-steer loaders into tracked skid-steer loaders.

Background of the Invention

[002] Skid-steer loader machines are old and well known to the art. Originally designed to operate with only a loading scoop or a bucket, these machines have, with the provision of specifically designed attachments, evolved into multi-purpose machines capable of many diverse operations. Nowadays, a skid-steer loader machine may be configured to operate as a street sweeper, a posthole digger, a trencher, or a forklift, for example. As the number of applications of skid steer loaders increases, they may be found in use in many different environments. Often, they are used in conditions where the surface upon which they traverse is not capable of supporting the weight of the skid-steer loader and they can become mired and/or lose traction.

[003] These drawbacks can be overcome by using vehicles having permanently installed tracks, or by removing the wheels of a wheeled vehicle and replacing them with a unitary tracked undercarriage. A problem with permanent tracked vehicles is that they are not designed to be converted to wheeled vehicles. A problem with undercarriage systems is that they are also designed with permanence in mind, and they are not easily removed after they have been installed. In addition, they are usually designed for use with a particular vehicle make and model, and are not easily transferable from one vehicle to another vehicle.

[004] Other solutions include providing the skid steer loader with a pair of auxiliary endless tracks that are positioned about the front and rear wheels on either side of the vehicle, or replacement the wheels of a skid steer loader with a sprocket and a system of rollers, about which a rubber track is installed. Each of these solutions also has its own set of drawbacks. With the auxiliary track solution, the pneumatic tires, about which the track is positioned, often do not have the same circumference. This can be due to different wear patterns, unmatched sets of tires, or different inflation pressures, for example. Since the front and rear wheel axles rotate at the same speed and direction (for straight line motion) the front and rear wheels, having different circumferences, will have different ground speeds. This means that friction and abrasion will be generated between the wheels and the track, which can lead to undue tire wear and even premature failure. An additional drawback is that such track add-ons are usually designed to fit a particular skid-steer loader having a predetermined wheelbase length, a predetermined axle length, and a predetermined tire size. With the replacement track solution, extensive modifications are often required. Moreover, the removal of the pneumatic tires often results in a harsher ride.

[005] Another related drawback to existing add-on track attachments is that when the front arms of the vehicle exert a downward pressure on an implement to which they are attached, the front end of the vehicle is lifted up. This reduces the ground contact area of the track and the vehicle looses traction. Moreover, when a vehicle is tipped back on its rear wheels it becomes more difficult to control.

[006] There is a need for track assembly that is able to convert a wheeled vehicle into a tracked vehicle. There is a need for a track assembly that can be attached to existing wheel flanges using lugs and bolts, and which requires no modification or disassembly of the vehicle. There is a need for a track assembly that can be adjusted for use with different wheeled vehicles models and makes. There is also a need for a track assembly that can accommodate a vehicle that has misaligned wheel axles, or wheel

flanges, or which can accommodate variations in axle or wheel flange rotation such as runout or wobble, and misalignment. There is yet another need for a track assembly that is able to maintain full ground contact while allowing the front end of the body of the vehicle to be elevated. And, there is a need for a track assembly that is able to attenuate jolts and vibrations from being transmitted directly to the vehicle.

Summary of the Invention

[007] Generally, the present invention is a track assembly for converting a wheeled vehicle to a tracked vehicle. The track assembly includes a first hub and a second hub that are adjustably connected to an elongated support frame by first and second attachment members. An endless track encircles, and is drivingly engaged by one of the first and second hubs. The first and second attachment members include resilient or movable mounts that are configured so that the track assembly can be attached to vehicles whose axles or wheel flanges are misaligned, or which have runout or wobble. The attachment members may also be adjustably positioned relative to the elongated support frame so that the track assembly can accommodate vehicles having different wheel base lengths and axle lengths. The track assembly increases traction and stability by providing a vehicle with an independent front axle suspension system, a larger footprint, and a longer wheelbase. In use, each track assembly is bolted onto wheel flanges of a vehicle using existing wheel lugs and nuts

[008] More specifically, the first (or rear) and second (or front) hub assemblies are configured to be attached to the wheel flanges of a vehicle whose wheels have been removed. Each of the hub assemblies includes an adaptor disc and a spindle, and each spindle of each hub assembly rotatably mounted to a bushing. Each adaptor disc includes a plurality of apertures that are configured and arranged so that they can accommodate the standardized wheel lug or bolt patterns of the wheel flanges. The first hub assembly adaptor disc also includes an additional circumferential flange, which includes inner and outer attachment surfaces and a second plurality of apertures that are configured and arranged to correspond with apertures of a removable drive

sprocket. The drive sprocket has an attachment surface and a track receiving surface that define planes, which are offset with respect to each other. In use the drive sprocket may be removably attached to either one of the inner or outer attachment surfaces of the circumferential flange of the adaptor disc, to enable the track assembly to be attached to different vehicles.

[009] First and second attachment members operatively connect the first and second hub assemblies to a support frame, respectively. Each of the first and second attachment members comprises a housing or body having a base with mounting apertures, and a through hole that receives the bushing to which the a respective hub assembly is rotatably mounted. Each of the attachment members may be configured so that they can accommodate variations in axle or wheel flange rotation such as runout or wobble, and misalignment. Preferably, a sleeve of resilient material is positioned between the inner surface of the through hole and the outer surface of the bushing. The inner sleeve of resilient material enables the attachment members to accommodate misaligned axles or wheel flanges and/or axles or wheel flanges that have rotational variations such as wobble and runout.

[0010] Alternatively, each of the first and second attachment members may be provided with an aperture and a trunnion (or pin) that are configured and arranged to engage a corresponding trunnion and collar that are coaxially aligned with each other, and which extend in a radial direction from respective hub assembly bushings in opposite directions. The aligned apertures, trunnions, and collars serve to rotatably connect the first and second hub assemblies to their respective attachment members, which in turn are attached to the support frame. Preferably, the rotatable connections formed by the apertures, trunnions, and collars of the respective attachment members and hub assembly bushings are aligned along generally vertical axes.

[0011] The manner in which the first and second attachment members are connected to support frame differ from each other. The first attachment member is attached to a first

adaptor plate that has a plurality of mounting apertures, which are located at both ends of the first adaptor plate in parallel, linear arrangements. The support frame has similar parallel linear arrangements of mounting apertures. However, the distance between the mounting apertures in the first adaptor plate and the distance between the mounting apertures in the support frame are different. This difference permits the first adaptor plate to be adjusted along the length of the support frame in discrete increments that can be less than the distances between the mounting holes of either the first adaptor plate or the support frame. In addition, the support frame may be constructed of adjustable elongated sections, which permit the length of the support frame to be modified when the degree of adjustment needed to attach the track assembly onto a vehicle exceeds the degree of longitudinal adjustment that is possible using the first adaptor plate.

[0012] A feature of the first adaptor plate is that the mounting apertures are located off-center with respect to the longitudinal axis of the first adaptor plate. This permits the first adaptor plate to be adjusted transversely with respect to the support frame by either inverting the plate (so that the bottom surface faces up) or by turning it around (so that the front and rear ends of the first adaptor plate point towards the rear and front ends, respectively, of the support frame). It will be understood that whenever the first adaptor plate is repositioned, the first attachment member must also be repositioned.

[0013] Similarly, the second attachment member is attached to a second adaptor plate that has a plurality of mounting apertures. However, unlike the first adaptor plate for the first attachment member, the mounting apertures of the second adaptor plate only permit adjustment in a transverse direction relative to the support frame. The second adaptor plate is operatively connected to a torsional bushing system that is linked to the support frame and which pivots with respect thereto. Preferably, the torsional bushing system comprises a square tube into which a square shaft and a plurality of resilient elements are positioned. In operation, when the shaft rotates relative to the tube, the resilient elements are compressed and rotation is prevented (see, U.S. Patent No.

3,601,424, for example).

[0014] An endless track is positioned about the first and second hub assemblies and is maintained in a predetermined configuration by a drive sprocket, first and second rollers located adjacent the ends of the support frame, and a tensioning member that guides the endless track over the second hub assembly.

[0015] An object of the present invention is to provide a track assembly that can be used to convert a wheeled vehicle into a tracked vehicle.

[0016] Another object of the invention is to increase the handling and stability of a wheeled vehicle.

[0017] Yet another object of the present invention is to simplify installation of a track assembly by limiting the points of attachment to the wheel flanges of a vehicle.

[0018] A feature of the present invention is that the track assembly is able to accommodate wheeled vehicles having different wheelbase lengths and axle lengths.

[0019] Another feature of the invention is that the track assembly is able to accommodate wheeled vehicles with wheel axles that are misaligned or wheel flanges that have irregular rotational movement such as runout or wobble.

[0020] Yet another feature of the present invention is that installation is non-permanent and reversible.

[0021] An advantage of the present invention is that the track assembly can be transferred from one vehicle to another vehicle.

[0022] Another advantage of the invention is that traction and stability are increased by

effectively lengthening the wheelbase of a vehicle.

[0023] Another advantage of the invention is that traction and stability are increased by providing the vehicle with an independent front suspension system.

[0024] These and other objectives and advantages of the invention will appear more fully from the following description, made in conjunction with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views. And, although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention, which may be embodied in other specific structure. While the preferred embodiment has been described, the details may be changed without departing from the invention, which is defined by the claims.

Description of the Drawings

[0025] Figure 1 is a side plan view of an embodiment of a track assembly as it may appear when it is attached onto a four wheeled loader;

[0026] Figure 2 is a perspective view of the track assembly of Figure 1, viewed apart from the four wheeled loader;

[0027] Figure 3 is an exploded perspective view of the track assembly of Figure 1, viewed apart from the four wheeled loader;

[0028] Figure 4 is an exploded, partial perspective view of an embodiment of a hub assembly and a wheel flange of a vehicle whose wheel has been removed;

[0029] Figure 5 is a partial, cross-sectional, assembled view of the embodiment of Figure 4;

[0030] Figure 6 is an exploded, partial perspective view of another embodiment of a hub assembly and wheel flange of a vehicle whose wheel has been removed;

[0031] Figure 7 is a partial, cross-sectional, assembled view of the embodiment of Figure 6;

[0032] Figure 8 is a partial top plan view of the support frame of the track assembly, with the apparatus configured for attachment to vehicles having short axle lengths;

[0033] Figure 9 is a partial top plan view of the support frame of the track assembly of Figure 8, in which the apparatus is configured for attachment to vehicles having long axle lengths;

[0034] Figure 10 is a partial, enlarged perspective view of the first or rear hub assembly and the first attachment member of Figure 8;

[0035] Figure 11 is a partial, enlarged perspective view of the first or rear hub assembly and the first attachment member of Figure 9;

[0036] Figure 12 is a partial, enlarged perspective view of the second or front hub assembly and the second attachment member of Figure 8;

[0037] Figure 13 is a partial, enlarged perspective view of the second or front hub assembly and the second attachment member of Figure 9;

[0038] Figure 14 is a side plan view of another embodiment of the track assembly of the present invention; and,

[0039] Figure 15 is a perspective view of the embodiment of the track assembly of Figure 14.

Detailed Description

[0040] A generic skid-steer vehicle 10 having a track assembly 30 attached thereto in lieu of wheels is depicted in Figure 1. Generally, the track assembly 30 comprises an apparatus or track carrier 34 and an endless track 38. More specifically, the apparatus 34 of the track assembly comprises a first hub assembly 40 and a second hub assembly 80 that are operatively connected to a support frame 130 by first and second attachment members 100, 112, respectively. Note that the distance between the rotational axes of the first and second hub assemblies are coincident with the rotational axes of the wheel axle axes to which they are attached.

[0041] First and second rollers 140, 150 are operatively connected adjacent opposing ends 132, 134 of the support frame 130 and serve to support the vehicle and to define the ground contacting extent of the endless track 38. The first and second rollers 140, 150 also redefine the wheelbase of the vehicle. Note the rotational axes 146 and 152 of the first and second rollers 140 and 150 are spaced from each other by a distance that is greater than the distance between the rotational axes of the first and second hub assemblies 40 and 80. As will be appreciated, this increases the stability and handling characteristics of the vehicle.

[0042] A tensioning member 210 is operatively connected to the support frame 130 and upper idler rollers 230 that serve to position the endless track 38 above the second hub assembly 80 in a non-contacting relation. One end 212 of the tensioning member is pivotally connected to the support frame 130 while the other end 214 of the tensioning member 210 is movably adjustable relative thereto by an adjustment mechanism 218. The adjustment mechanism 218 comprises a shaft 220 having one end that is pivotally connected to the tensioning member 210 and another end that is provided with a threaded shaft 222 having a free end. The free end of the threaded shaft 222 is received within an aperture in an angled extension 224. The threaded shaft 222 is

provided with one or more nuts 226 that are used to adjust a resilient member 228 that is positioned on the threaded shaft 222 adjacent the angled extension 224. The force of the resilient member 228 that is imparted to the tensioning member 210 can be adjusted by moving the nuts 226 along the threaded shaft 222 (see also, Figures 3, 12 and 13).

[0043] An endless track 38 encircles the first and second hub assemblies 40 and 80, the first and second rollers 140 and 150, and the tensioning member 210 of the apparatus 34. The endless track 38 is engaged by one of the hub assemblies, preferably the first hub assembly 40.

[0044] The first hub assembly 40 and the first attachment member 100 can be seen in greater detail in Figure 2. Engagement of the endless track 38 by the first hub assembly 40 is achieved by a sprocket 60, which is removably attached thereto. As will be discussed later, the sprocket 60 is configured and arranged so that it may be reversibly attached to the first hub assembly 40. As will be discussed later in greater detail, the first attachment member 100, to which the first hub assembly 40 is connected, is adjustably attachable to the support frame 130 in one of several discrete positions along the length and width thereof.

[0045] The support frame 130 itself comprises an elongated section that has a generally u-shaped cross-section. As can be seen, the support frame 130 is configured and arranged to rollingly retain the first and second rollers 140 and 150, as well as a plurality of support rollers 154. The second attachment member 112 is attached to an articulating connection 192 that is movably connected to the support frame 130. As will be discussed later, the articulating connection 192 attenuates jolts and vibrations that are generated when the vehicle travels over uneven ground. The articulating connection 192 also allows the vehicle body to rear back on the first roller 140 while the second roller 150 maintains contact with the ground. This provides the vehicle with greater traction and control over a greater range of operating conditions than is possible with a wheeled vehicle that has been provided with an endless track.

[0046] The various components of the apparatus or track carrier 34 are depicted in greater detail in Figure 3. As shown, the sprocket 60 is in the form of a ring having track receiving surface 68 comprising a plurality of radially extending projections 70 that are configured and arrange to drivingly engage the endless track 38. The sprocket 60 is provided with two sets of apertures 62 and 64 that are arranged in concentric rings about the center of rotation. The innermost set of apertures 62 is used to attach the sprocket 60 to the hub assembly 40, while the outermost set of apertures 64 is used as sight holes during installation of the track assembly onto a vehicle wheel flange.

[0047] The first attachment member 100, which is adjustably connected to the support frame 130, is provided with a base 102 that has attachment apertures 104 that permit the first attachment member 100 to be attached to a first adaptor plate 160 in one of several orientations. As will be discussed later in greater detail, the first adaptor plate 160 allows the first attachment member 100 to be attached to the support frame 130 in various longitudinal as well as a transverse directions.

[0048] The first attachment member 100 is attached to a first adaptor plate 160 has a top surface 162, a bottom surface 164, a opposing ends 166 and 168, opposing sides 170 and 172 and a plurality of mounting apertures 174, which are located at both ends 166 and 168 of the first adaptor plate 160 in parallel, linear arrangements. The support frame 130 has similar parallel linear arrangements of mounting apertures 136. However, the distance between the mounting apertures 174 in the first adaptor plate and the distance between the mounting apertures 136 in the support frame are different. This difference permits the first adaptor plate 160 to be adjusted along the length of the support frame 130 in discrete increments that can be less than the distances between the mounting apertures of either the first adaptor plate or the support frame

[0049] A feature of the first adaptor plate 160 is that the mounting apertures 174 are

located off-center with respect to the longitudinal axis of the first adaptor plate 160. This permits the first adaptor plate 160 to be adjusted transversely with respect to the support frame 130 by either inverting the adaptor plate (so that the bottom surface 162 faces up) or by turning it around (so that the front and rear ends 166, 168 of the first adaptor plate point towards the rear and front ends 132, 134, respectively, of the support frame 130). It will be understood that whenever the first adaptor plate 130 is repositioned, the first attachment member 100 must also be repositioned.

[0050] The second attachment member 112, which is also adjustably connected to the support frame 130, is limited to adjustments in the transverse direction. The second attachment member 112 is provided with a base 114 having attachment apertures 116 that permit the second attachment member 112 to be operatively connected to a suspension system 190. As depicted, the suspension system 190 comprises a square tube that is sized to rotatingly receive a square rod. The ends of the square rod are splined to ends 196, 202 of first and second arms 194, 200, whose opposing ends 198 and 204 are pivotally attached to the support frame 130. Resilient inserts 206, positioned between the outer surface of the square rod and the inner surface of the square tube, resist rotation of the square rod relative to the square tube. Together, the square tube, square rod, resilient members 206, first and second arms 194, 200, and the second support member 112, form an articulating connection 192.

[0051] The tensioning member 210, which supports the endless track 38 above the second hub assembly 80, has a first end 212 and a second end 214, and comprises a pair of spaced apart, generally u-shaped arms 232, 234. First ends of the u-shaped arms 232, 234 are pivotally connected to the support frame 130, while second ends are movably connected to the support frame 130 by an adjustment mechanism 218. The u-shaped arms 232, 234 are configured and arranged to rollingly support two upper idler rollers 230 that are configured to engage the endless track 38 so that it is spaced from the second hub assembly 80 in a non-contacting relation. Preferably, the tensioning member 210 imparts a forward slant to the endless track 38 so that it is better able to

negotiate vertical obstacles.

[0052] As can be seen, first and second rollers 140 and 150 are configured differently. The first roller 140 includes a plurality of grooves 142, 144 that are configured and arranged to accommodate two rows of guide teeth on the inner surface of the endless track 38, while the front roller 150 is designed to ride between the two rows of guide teeth of the endless track. The forwardmost support rollers 154, which are positioned between the first and second rollers 140 and 150 are configured and arranged to accommodate the two rows of guide teeth on the inner surface of the endless track, while the rearmost support wheels 156 and 158 are separately mounted to the side walls of the support frame 130. This is done to provide clearance for the sprocket 60. The rearmost support wheels 156, and 158 also reduce chatter in the endless track 38 when the vehicle is in motion.

[0053] An embodiment of the first hub assembly 40 and the first attachment member 100 are depicted in Figures 4 and 5. Starting on the right side of Figure 4, a wheel axle 12 having a wheel flange 14 and a plurality of lugs 16 are depicted. To the left is a hub assembly 40 comprising an adaptor disc 42 with a circumferential flange 44 a spindle 46. The adaptor disc 42 is provided with two sets of apertures 48 and 50 that are arranged in concentric rings about the axis of rotation. The innermost set of apertures 48 is used to attach the adaptor disc 42 to the wheel flange 14 of a vehicle (see Figure 5, note that the wheel lug nuts have been omitted), while the outermost set of apertures 50, located on the circumferential flange 44 is used to attach the sprocket 60 thereto (see, for example, Figure 3). The hub assembly 40 is rotatably mounted to a bushing 56 using conventional bearings 58. A sleeve 110 of resilient material is positioned between the exterior surface of the bushing 56 and the inner surface of the through hole 108 of the first attachment member 100. This permits movement between the first hub assembly 40 and the first attachment member 100, the track assembly is able to accommodate wheel axles that are misaligned, or wheel flanges that have irregular rotational movement such as runout and wobble. Preferably, the sleeve 110 of resilient material is elastomeric. Optionally, the sleeve of resilient material may be provided with

differential durometer hardness rates to enable the resilient material to preferentially flex in certain directions. For example, the durometer rates could be higher for the upper and lower portions of an installed sleeve, while the durometer rates could be lower in the forward and rearward portions of the installed sleeve. It will be appreciated that the second hub assembly 80 and the second attachment member 112 are similarly constructed, only that with the second hub assembly 80, the adaptor disc does not have a circumferential flange. Thus, the second hub assembly will not be discussed in detail.

[0054] An alternative embodiment of the first hub assembly and the first attachment member are depicted in Figures 6 and 7. Starting on the right side of Figure 6, a wheel axle 12 having a wheel flange 14 and a plurality of lugs 16 are depicted. To the left is a hub assembly 40 comprising an adaptor disc 42 with a circumferential flange 44 a spindle 46. The adaptor disc 42 is provided with two sets of apertures 48 and 50 that are arranged in concentric rings about the axis of rotation. The innermost set of apertures 48 is used to attach the adaptor disc 42 to the wheel flange 14 of a vehicle (see Figure 7, note that the wheel lug nuts have been omitted), while the outermost set of apertures 50, located on the circumferential flange 44 is used to attach the sprocket 60 thereto (see, for example, Figure 3). As with the first embodiment, the hub assembly 40 is rotatably mounted to a bushing using conventional bearings 58.

[0055] Instead of having a sleeve of resilient material that accommodates irregular rotational movement, this embodiment features a pivotal connection. As depicted, the first attachment member 240 comprises two parts, with the first part 242 serving as the base, and the second part 244 attached thereto. The first part 242 includes a trunnion 246, while the second part includes a socket 248, with the trunnion and the socket in axial alignment with each other. The bushing 250, which is attached to the first attachment member 240, is provided with a collar 252 and a trunnion 254, with the collar 252 of the bushing 250 configured to rotatabably receive the trunnion 246 of the first part 242 of the attachment member 240, and with trunnion 254 of the bushing 250 configured to be rotatably received by the socket 248 of the second part 244 of the attachment member 240. As will be understood, the pivotal connection permits

movement between the first hub assembly 40 and the first attachment member 240, and the track assembly is able to accommodate wheel axles that are misaligned, or wheel flanges that have irregular rotational movement such as runout and wobble. It will be appreciated that the second hub assembly and the second attachment member of this embodiment are similarly constructed, only that with the second hub assembly, the adaptor disc does not have a circumferential flange. Thus, the second hub assembly of this embodiment will also not be discussed in detail. It will be understood that the resilient material could also be in the form of mechanical springs, or fluidic suspension, for example.

[0056] One of the features of the present invention is that it can be attached to vehicles having different axle lengths and wheelbase lengths. In Figure 8, the apparatus or track carrier 34 is depicted as it may be configured for attached to a vehicle having a short axle length. Here, the first attachment member 100 and second attachment member 112 are connected to the support frame 130 in an inboard position. In Figure 9, the apparatus or track carrier 34 is depicted as it may be configured for attachment to a vehicle having a long axle length. Here, the first and second attachment members 100 and 112 are connected to the support frame 130 in an outboard location.

[0057] Figure 10 illustrates, in greater detail, the first attachment member 100 as it may be configured for vehicles having a short axle length. For attachment to a short axle length vehicle, the sprocket 60 is attached to the outer attachment surface 54 of the circumferential flange of the first hub assembly (see, Figure 7). This positions the sprocket 60 so that the plane of the track receiving surface 68 is offset outwardly away from the vehicle. Meanwhile, the first attachment member 100 is positioned adjacent one side 172 of the adaptor plate 160 so that it partially extends therebeyond. Note the cutout 176 on the outboard side 170 of the adaptor plate 160.

[0058] Figure 11 illustrates, in greater detail, the first attachment member 110 as it may be configured for vehicles having a long axle length. For attachment to a long axle length vehicle, the sprocket 60 is attached to the inner attachment surface 52 of the

circumferential flange of the first hub assembly (see, Figure 5). This positions the sprocket 60 so that the plane of the track receiving surface 68 is offset towards the vehicle. Meanwhile, the position of the adaptor plate 160 is reversed so that the side 170 with the cutout 176 now faces inwardly. Note that the first attachment member 100 is positioned adjacent the same side 172 of the adaptor plate as before, however, in this instance, the orientation of the first attachment member 100 is reversed so that it now faces toward the opposite side 170 (the side with the cutout) of the adaptor plate 160.

[0059] It will be appreciated that regardless of the axle length to which the track assembly is configured, the adaptor plate 160 will still maintain its ability for adjustment along the length of the support frame in discrete increments, as discussed above. A feature of the adjustable connection between the first attachment member 100 and the support frame 130 is that the adaptor plate 160 and a lateral extension of the support frame (see, Figure 3) may be provided with identifying indicia 178. The indicia 178 forms a code that corresponds to the adaptor plate attachment locations relative to the support frame 130. When the track assembly 30 is to be attached to a particular vehicle, the user need only refer to the particular vehicle code designations in order to obtain the correct adaptor plate attachment settings.

[0060] Figure 12 illustrates, in greater detail, the second attachment member 112 as it may be configured for vehicles having a short axle length. For attachment to a short axle length vehicle, the second support member 112 is positioned along the second adaptor plate 180 in an inboard position and attached thereto by conventional fastening elements and attachment apertures.

[0061] Figure 13 illustrates, in greater detail, the second attachment member 112 as it may be configured for vehicles having a long axle length. For attachment to a long axle length vehicle, the second support member 112 is positioned along the second adaptor plate 180 in an outboard position. Note that in this configuration, the second attachment member 112 lies adjacent the first arm of the articulating connection.

[0062] An alternative embodiment of the track assembly is depicted in Figures 14 and 15. In this embodiment, the first and second hub assemblies 40 and 80 are connected to the first and second attachment members 240 by pivotal connections, respectively (see the pivotal connection depicted in Figures 6 and 7). In addition, the support frame comprises a plurality of elongated sections 262, 262 that are adjustably attached to each other using fasteners such as nuts and bolts 264. The adjustable support frame is preferred when the distances needed to adjust the attachment members relative to the support frame is exceeded. The use of elongated sections 260 and 262 permits the support frame to be adjusted to accommodate vehicles having wheelbase lengths in the range of about 75 cm to about 150 cm. (30 to 60 inches). Preferably, the two elongated sections 260 and 262 can telescope relative to each other, but it will be appreciated that other configurations are possible. For example, it is envisioned that the support frame could comprise two elongated sections that are adjustably attached to each other by a third, center section.

[0063] The foregoing is considered as illustrative only of the principles of the invention. Furthermore, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described. While the preferred embodiment has been described, the details may be changed without departing from the invention.